

# Small-Scale, Methane-Fueled Reaction Control Engines for In-Space Propulsion, Phase I

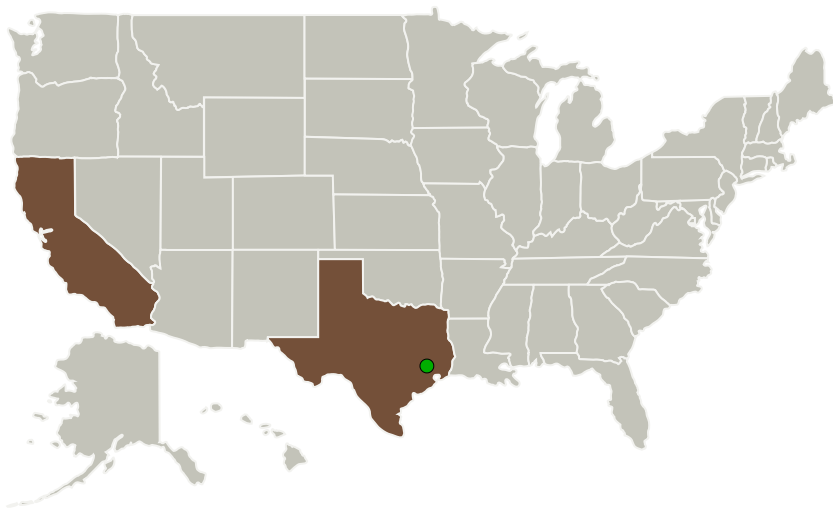
Completed Technology Project (2015 - 2015)




## Project Introduction

Given increasing interest in high-performance, Methane-fueled reaction control engines in the 5-100lbf thrust class, Ventions proposes the design, fabrication and hot-fire testing of a nominal 50lbf engine that is batch fabricated in a low-cost manner using a novel manufacturing process. The proposed approach leverages several years of DARPA and NASA funded work by Ventions in the successful development and ground / flight testing of such configurations, and allows for the realization of complex regenerative cooling passages and injector geometries previously unattainable by conventional fabrication methodologies.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Ventions, LLC	Lead Organization	Industry	San Francisco, California
 Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas



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## Primary U.S. Work Locations

California

Texas

## Project Transitions

**June 2015:** Project Start

**December 2015:** Closed out

**Closeout Summary:** Small-Scale, Methane-Fueled Reaction Control Engines for In-Space Propulsion, Phase I Project Image

### Closeout Documentation:

- Final Summary Chart Image(<https://techport.nasa.gov/file/139467>)

## Images



### Briefing Chart Image

Small-Scale, Methane-Fueled Reaction Control Engines for In-Space Propulsion, Phase I  
(<https://techport.nasa.gov/image/126977>)

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Organization:

Ventions, LLC

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

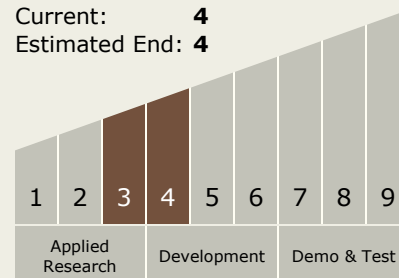
Carlos Torrez

### Principal Investigator:

Adam London

## Technology Maturity (TRL)

Start: **3**  
Current: **4**  
Estimated End: **4**



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## Technology Areas

### Primary:

- TX01 Propulsion Systems
  - └ TX01.1 Chemical Space Propulsion
    - └ TX01.1.3 Cryogenic

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System